

WE CLAIM:

- 1 1. A process for preparing organic hydro-
2 peroxides, which process comprises:
 - 3 (a) oxidizing an organic compound to obtain a
4 reaction product containing organic hydroperoxide;
5 (b) treating at least part of the organic
6 hydroperoxide containing reaction product with a basic
7 aqueous solution and separating hydrocarbonaceous phase
8 containing organic hydroperoxide from basic aqueous
9 phase,
10 (c) washing with water at least part of the separated
11 hydrocarbonaceous phase containing organic hydroperoxide
12 and separating hydrocarbonaceous phase containing organic
13 hydroperoxide from aqueous phase; and,
14 (d) optionally repeating step (c) one or more times,
15 in which process solid particles are removed from the
16 reaction product containing organic hydroperoxide and/or
17 basic aqueous solution before use in step (b).
- 1 2. The process of claim 1, in which process
2 solid particles are removed by filtering at least part of
3 the reaction product containing organic hydroperoxide
4 and/or at least part of basic aqueous solution before use
5 in step (b) with a filter.
- 1 3. The process of claim 2, wherein at least part
2 of the basic aqueous solution which has been separated
3 off in step (b) is filtered and subsequently recycled to
4 step (b).
- 1 4. The process of claim 1, wherein the basic
2 aqueous solution contains fresh basic aqueous solution,
3 recycled basic aqueous solution and optionally additional
4 water.
- 1 5. The process of claim 1, wherein in step (c)
2 and/or (d) at least part of the separated
3 hydrocarbonaceous phase containing organic hydroperoxide
4 is washed with waste water optionally in combination with
5 clean water.

1 6. A process for preparing oxirane compounds, which
2 process comprises:
3 (a) oxidizing an organic compound to obtain a
4 reaction product containing organic hydroperoxide;
5 (b) treating at least part of the organic
6 hydroperoxide containing reaction product with a basic
7 aqueous solution and separating hydrocarbonaceous phase
8 containing organic hydroperoxide from basic aqueous
9 phase,
10 (c) washing with water at least part of the separated
11 hydrocarbonaceous phase containing organic hydroperoxide
12 and separating hydrocarbonaceous phase containing organic
13 hydroperoxide from aqueous phase;
14 (d) optionally repeating step (c) one or more times;
15 (e) contacting at least part of the hydrocarbonaceous
16 phase containing alkylaryl hydroperoxide obtained in
17 step (c) and/or (d) with olefin and catalyst to obtain
18 alkylaryl hydroxide and oxirane compounds; and,
19 (f) separating at least part of the oxirane compound
20 from the alkylaryl hydroxide,
21 in which process solid particles are removed from the
22 reaction product containing organic hydroperoxide and/or
23 basic aqueous solution before use in step (b).

1 7. The process of claim 6, which process further
2 comprises:

3 (g) dehydrating at least part of the alkylaryl
4 hydroxide obtained in step (f) to obtain an alkenyl aryl
5 compound and water.

1 8. The process of claim 6, which process further
2 comprises:

3 (g) converting at least part of the alkylaryl
4 hydroxide obtained in step (f) via hydrogenolysis to
5 obtain an alkylaryl compound.

1 9. The process of claim 6, wherein solid particles
2 are removed by filtering at least part of the reaction
3 product containing organic hydroperoxide and/or at least

4 part of basic aqueous solution before use in step (b)
5 with a filter.

1 10. The process of claim 9, wherein the filter has
2 openings of 50 micrometers or less.

1 11. The process of claim 9, wherein at least part of
2 the basic aqueous solution which has been separated off
3 in step (b) is filtered and subsequently recycled to step
4 (b).

1 12. The process of claim 6, wherein the basic aqueous
2 solution contains fresh basic aqueous solution, recycled
3 basic aqueous solution and optionally additional water.

1 13. The process of claim 6, wherein in step (c)
2 and/or (d) at least part of the separated
3 hydrocarbonaceous phase containing organic hydroperoxide
4 is washed with waste water optionally in combination with
5 clean water.